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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/856,222	08/20/2001	Thomas Engel	GK-ZEI-3126/	6741

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EXAMINER

NGUYEN, THONG Q

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 06/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/856,222

Applicant(s)

ENGEL ET AL.

Examiner

Thong Q. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2002 and 27 August 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-11 and 13-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-11 and 13-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 28 May 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11. 6) ☐ Other: _____

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DETAILED ACTION

Response to Amendment

1. The present Office action is made in response to the amendment (Paper No. 9) of 5/28/2002 and the filing of the information Disclosure statement (Paper No. 11) of 8/27/2002. It is noted that in the mentioned amendment, applicant has amended claims 6-11 and 13, canceled claim 12 and added claims 14-15. As a result, the pending claims are now claims 6-11 and 13-15.

Drawings

2. The corrected or substitute drawings were received on 5/28/2002. These drawings are approved by the Examiner.

Specification

3. The lengthy specification which is amended by the amendment of 5/28/2002 has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 9 and 14-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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a) Claim 9 is rejected under 35 USC 112, second paragraph because it is unclear about the feature relating to the speed of the diffuser disk. In other words, the speed or the magnitude of rotation defined by the so-called "one grain size" (line 2) or "the resolution limit of a holographically generated structure" (line 3) or "the length of a structure takes place between two laser pulses" (lines 3-4) is indefinite.

b) Claim 15 is rejected under 35 USC 112, second paragraph for the similar reason as set forth in element a) above.

Allowable Subject Matter

6. The indicated allowability of claim 7 as set forth in the previous Office action (Paper No. 6) is withdrawn in view of the newly discovered reference(s) to Partlo et al (U.S. Patent No. 5,233,460). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 6-7 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biegen (U.S. Patent No. 4,869,593, of record) in view of Partlo et al (U.S. Patent No. 5,233,460).

Biegen discloses an inspecting system for inspecting a test surface. The inspecting system as described in columns 2-5 comprises a laser module (10), a microscope, a rotating diffusing system (18, 20) disposed after the laser module for providing a homogenization of the illumination, an optical system for receiving

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the laser and for guiding laser beam to a test surface (48), an imaging system (56, 58) for receiving light from the test surface and then transmitting such light to a display system having a monitor (72), and a controlling system for controlling the operation of the inspecting system. Regard to the type of light used in the inspecting system, while Biegen discloses the use of spatially coherent or incoherent light (see abstract and column 4, for example), he does not clearly state that the light used is a pulsed laser in an UV range. However, the use of an optical system having laser pulsed in the range of ultraviolet and two counter-rotating diffusers for the purpose of reduction of speckle in a coherent-source system is known and/or suggested to one skilled in the art as can be seen in the system provided by Partlo et al. See columns 1-4, in particular, column 4, lines 26-41. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the inspecting system provided by Biegen by using a pulsed laser in the range of ultraviolet bandwidth for inspecting an object surface and two counter-rotating diffusers as suggested by Partlo et al for the purpose of increasing the homogenization of illuminating light on an object surface so that an image with better quality is provided to an observer.

9. Claims 8-9 and 15, as best as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Biegen in view of Partlo et al as applied to claim 6 above, and further in view of Ligten et al (U.S. Patent No. 3,490,827, of record).

The combined product provided by Biegen and Partlo et al as described above does not clearly state the formation of the diffuser. However, the use of a diffuser in the

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form of a holographical element is known to one skilled in the art as can be seen in the system for speckle reduction provided by Ligten et al. See columns 6-7 and figs. 2A, 2D, for example. Regard to the feature relating to the rotation speed of the diffuser as claimed in each of claims 9 and 15, such a rotation speed with at least a magnitude as claimed is an obvious matter within the level of one skilled in the art because 1) one skilled in the art will recognize that (s)he should adjust the rotation speed of the diffuser to a suitable speed which warrant the optimal result/quality of the image to be observed; and 2) the claim fails to provide a positively limitations for the rotation speed of the diffuser (see the rejection of the claim(s) under 35 USC 112 set forth in this Office action). Thus, it would have been obvious to one skilled in the art at the time the invention was made to utilize the diffuser with structure as provided by Ligten et al in the inspecting system of Biegen and Partlo et al for the purpose of improving the image quality and speckle reduction.

10. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biegen in view of Partlo et al as applied to claim 6 above, and further in view of Oohashi et al (U.S. Patent No. 6,078,393, of record).

The combined product as provided by Biegen and Partlo et al does not clearly state that the wavelength used in the illuminating process has a wavelength of 193 nm or 248 nm However, the use of pulsed laser having such a wavelength in an inspection system is known to one skilled in the art as can be seen in the inspecting system provided by Oohashi et al. In particular, Oohashi et al disclose an inspecting system having a laser module for providing a pulsed laser ray which is guided to a


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diffusing element rotatable about the illuminating light path for the purpose of eliminating speckle problems, and a sensor which can be a UV camera for detecting light from the objected to be illuminated. Regard to the wavelength used in the pulsed laser, in column 5, for example, the wavelength is 193 nm or 248 nm. Thus, it would have been obvious utilize the pulsed laser having wavelength of either 193 nm or 248 nm as suggested by Oohashi et al for the purpose of inspecting a semiconductor objects.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional references are cited as of interest in that each discloses the use of an inspecting system having laser and diffusing element(s).

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thong Q. Nguyen whose telephone number is (703) 308-4814. The examiner can normally be reached on M-F. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.



Thong Q. Nguyen
Primary Examiner
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May 27, 2003